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AUTHOR Greenwald, Anthony G.; Gillig, Paulette M.
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ABSTRACT

This paper presented the cumulative knowledge that the authors gained about the "sleeper effect" during a series of 5 experiments. The "sleeper effect" is the improved effects of communication over time -- after one has a chance to "sleep on it." From their experiments, the authors conclude that, at best, the "sleeper effect" is statistically an unreliable phenomenon. In addition, when presented with truism-opposing communication, relayed in short paragraph segments, subjects' reactions indicated that the low-credible source induced substantially more discounting (but not more counterarguing) than did the high-credible source. Also, the prior counterargument defense induced substantially more counterarguing (but not more discounting) than did the no-defense condition. A plausible hypothesis was revised to read: audiences may be more susceptible to the effects of a similar communication from a new source when their response to an initial communication has been discounting rather than counterarguing. (TA)

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A cognitive response analysis of the "sleeper effect"

Anthony G. Greenwald and Paulette M. Gillig
Ohio State University

When this symposium was planned, Paulette Gillig and I had completed three experiments on the sleeper effect. Our results looked somewhat like we expected them to, given the analysis of the sleeper effect that I am going to describe. Since then, however, we conducted two more experiments. Taking together the results of our five experiments, we now doubt that such a phenomenon as the sleeper effect really exists, or to state it more cautiously, we suspect either that the sleeper effect is not a sufficiently powerful phenomenon to be detected reliably in experiments with moderately large numbers of subjects, or that it is dependent on rather subtle forms of experimental manipulations - too subtle for us to capture the effect reliably in a series of attempts.

I shall review our series of experiments in chronological order, dwelling briefly upon the changes of mind we have gone through as the data have accumulated. This will be what I think is not too atypical a case history in social psychology -- the type that one rarely sees published, however, because some of the main results consist of failure to reject the null hypothesis. I think, however, that such case histories should become public knowledge, given that the investigators have done their work carefully, because this is the only way that the archival literature can be cleansed of its Type I errors -- that is, articles reporting significant findings that can't be replicated. They can't be replicated because the phenomena don't really exist, but their presumed existence persists because editors are reluctant to publish failures to replicate.

In making this presentation, I shall try not to lose sight of the symposium theme of counterarguing. Although the results were frustrating as regards the sleeper effect, they nonetheless fairly consistently showed the effectiveness of counterarguments in reducing persuasion.

The general theoretical framework that provided the impetus for this series of experiments is one I have elsewhere called "cognitive response analysis of persuasion." In this analysis, the persuasion situation can be regarded as consisting of presentation of a stimulus -- that is, the "attitude object" -- and recommendation of some response to the object, usually a response that implies positive or negative evaluation of the object. Typically, both attitude object and recommended response are presented verbally. Acceptance of the communication consists of the recipient's forming the recommended verbal association between attitude object and evaluative response. This association might be expected to be formed if the recipient's cognitive activity during the communication consists of covert rehearsal of the recommended responses -- in other words, undivided attention to the communication.

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The recommended association would not be formed if the recipient fails to attend to the communication. But we know that inattention is not the typical basis for resisting persuasion in laboratory experiments with captive audiences. An alternative mechanism for resisting persuasion follows from the possibility that responses conflicting with the recommended one (that is, communication-opposing responses) occur during receipt of a persuasive communication. A communication may be well attended, but the additional covert occurrence of communication-opposing responses--in effect, a supplementary communication by the recipient to himself--may reduce or eliminate the communication's attitude-change impact.

One major category of communication-opposing responses is the counterargument, which we define as disagreement with a communicated argument based on specific knowledge--knowledge that effectively negates or neutralizes a stimulus argument of the communication. Another major category of communication-opposing responses is the discounting response, defined as disagreement that is no more than a nonexplicit belief in the incorrectness of the communication. To illustrate, suppose I tried to persuade you that Ohio State University has the best social psychology program in the country. If you responded by reminding yourself of some other departments that you consider to have superior staff and facilities in social psychology, you would be counterarguing. But, if you consider only the fact of my bias in being a member of that program in rejecting my appeal, then you are more simply discounting. These two types of responses may be expected to function differently in resistance to persuasion. I have hypothesized that a counterargument can become associated with the communicated argument to which it pertains--that is, if you hear the same argument later, you should respond even more quickly with the counterargument that is specific to it. Accordingly, resistance to persuasion conferred by rehearsal of counterarguments during the communication should be durable. The discounting response, on the other hand, may not confer such durable resistance to persuasion, in that it may be associated with features of the persuasion situation other than the communication's content. For example, if you hear the argument about Ohio State having the best social psychology program in the country subsequently from Irving Janis, you are unlikely to be reminded of your discounting response because that response was associated with the previous communicator, not with the content of the argument.

As a final matter of clarification before presenting data, it may help if I define what is meant by the "sleeper effect," a term around which I hope you will hear quotation marks every time I utter it. The sleeper effect was originally identified in a study reported by Hovland, Lumsdaine, & Sheffield (1949), in their volume "Experiments on Mass Communication." In testing the persuasive effects of a film titled "The Battle of Britain," these investigators found that, on some opinion items, more change in the desired direction was obtained 9 weeks after the film than 5 days after. This pehnomenon was referred to as a sleeper effect, by which it was

meant that the effects of the communication improved over time--after the audience had a chance to "sleep on it." As a result of research chiefly by Hovland, Weiss,and Kelman, the sleeper effect has been interpreted as a complex process with the following components: (1) the audience is initially somewhat favorably disposed to the communication's viewpoint; (2) however, some aspect of the initial persuasion situation causes an immediate reaction of discounting the communication--perhaps the source of the communication is not particularly expert or likeable; and (3) with passage of time, the audience dissociates the basically positive reaction to the communication from the negative reaction to the source--with the result that more acceptance is measurable after a delay than immediately <u>if</u> nothing happens to remind the audience of the basis for their initial discounting reaction.

Perhaps it has occurred to you already that the sleeper effect experiment appears to provide a remarkable opportunity for testing the formulation I just described of a distinction between counterarguments and discounting responses as bases for resisting persuasion. I suggested that the counterargument response provides a basis for durable resistance to persuasion in that subsequent encounter with the same argument should reevoke the counterargument, while discounting does not confer such lasting resistance.

Accordingly, I predicted that the sleeper effect should occur under conditions that favor initial occurrence of a discounting response, but should not occur under conditions that favor initial occurrence of counterarguing in response to a communication. Paulette Gillig and I then sought, starting just over a year ago, to obtain confirmation of this analysis.

The subjects in our experiments were 628 undergraduate students at Ohio State University, 414 of whom were participating in an educational experience that was part of their introductory psychology course (it may no longer be ethical to describe their participation as fulfilling a course requirement), with the remainder hired for pay through a classified advertisement in the university newspaper. Communications were presented to the subjects via television monitors in individual small laboratory rooms, as shown in the first slide. Our facilities permitted obtaining data from up to four subjects at a time in this fashion.

In order to control subjects' predispositions to discount or counterargue with communications, we used health truism communications, based on those used by McGuire in his studies of resistance to persuasion. These communications have the properties of being in conflict with the existing opinions of most subjects, yet subjects have had little practice in defending their opinions on these topics and do not generally have the informational resources to refute the communicated arguments--that is, to counterargue. We could provide subjects the ability to counterargue by preeducating them with what McGuire called "refutational-same" defenses for these topics. Additionally, in the first 3 experiments we varied the

credibility of the source of the truism-attacking communication, in order to gain some leverage over subjects' tendencies to discount these communications. We expected subjects to counterargue when they were provided with the counterargument defense, and we expected them to discount the truism-attacking communication when it was attributed to a source of low credibility. We used additional groups of subjects in the first 4 experiments to check that the credibility and defense variations produced their intended effects on subjects' cognitive responses to the truism-attacking communications, and we found we were generally successful in this regard, although I will not take the time to detail the results for these additional groups. Accordingly, we expected to find a sleeper effect when subjects received a communication from a low credibility source, but no sleeper effect when this communication was preceded by the counterargument defense. We looked for the sleeper effect by assessing opinions with the 4-item scales used by McGuire both immediately after the communication and again after a delay of about two weeks.

The results for the first experiment are shown in the next slide. This experiment used McGuire's communication "The dangers of penicillin," which argued against the use of that drug. This communication was attributed either to a high credibility source, a leading medical researcher on the effects of penicillin, or to a low credibility source, a member of a group called "Practicing Nature Therapists," described as opposing any form of drug use. Before being exposed to this videotaped communication, subjects received either the counterargument defense for this communication or they received an irrelevant communication. Opinions were measured both immediately after the communication, in the laboratory, and again after 11 or 12 days by telephone. The same 4-item scale was used for both measurements. From the results, it may be seen that the credibility variation had a small effect (not significant, as it turned out) on the immediate opinion posttest, while the defense variation had a substantial and significant effect on the delayed posttest. The result that interested us most was the contrast between the two low credibility groups, the one that had received a counterargument defense and the other that had not. These are isolated in the next slide. This pattern conformed to our prediction, in that the no defense group showed significantly more effect of the communication at the delayed posttest than did the group receiving the prior counterargument defense. However, the difference between the two time trends, that is the defense by time interaction within the low credibility condition, was not significant; so we did a replication, the results of which are given in the next slide.

Here we used a different topic from McGuire's truism collection; the communication argued against the desirability of routine annual medical checkups. The procedure was otherwise the same as that of the first experiment, except that the interval between the two opinion measurements was 14 or 15 days in this replication. I'm not going to look at this slide because the results of this experiment are painful for me to look at, even a year after the data were collected. These data show just about nothing. After reviewing the situation, Gillig and I could only conclude that our subjects had been inattentive to our experimental procedures. We

had some concrete evidence to support this conclusion. At one point in the experiment, immediately after the source of the truism attacking communication had been described as a "leading medical researcher" or as a "practicing nature therapist," the subjects were asked to respond to a forced choice item that required them to identify the communicator as a "medical researcher" or "nature therapist." Shockingly, out of 202 subjects who participated in this experiment, 32 made an erroneous identification at this point. As a consequence, Gillig and I were able to convince ourselves that these data should not be regarded as suitable for hypothesis testing, and we have subsequently ignored them. We think this collective lapse of attention may be associated with the use of introductory psychology students near the end of the academic term. We have attempted to avoid this problem in the other experiments of the series by using either introductory psychology students near the beginning of a term or else hiring paid volunteers.

For the third experiment, we returned to the penicillin topic and the results are on the next slide which, you will notice, does not clearly resemble any pattern you may have been able to detect from the first two experiments. In this experiment, the delayed opinion measurement took place in a second laboratory session, rather than by telephone, and two control groups were added, indicating opinion in the absence of a communication, and the impact of the communication with source not described.

In this experiment we see a temporal decay of the effect of the communication in the high-credible source, no defense condition, and little else. There was a significant source credibility by time interaction within the no defense condition which may be seen in the two dashed lines of this slide. While this interaction is often taken as the criterion for occurrence of a sleeper effect, it may be seen that the particular effect we were looking for of enhanced change after time delay in the low credibility, no defense condition, was not to be found.

It is at this point in a frustrating series of investigations that researchers typically begin to show the symptom of playing with their data. It was in such a playful spirit that we examined our results in terms of direction of change between the immediate and delayed opinion measures. Net percentages of change--that is, the % changing in the advocated direction minus the % changing in the opposite direction--are written in parentheses on the lines of this graph. Remarkably, these data showed something looking like a sleeper effect in the condition in which we expected one to occur--the net proportion of subjects changing in the direction of the communication was 29%, which was reliably greater than zero, for the low credibility, no defense condition, and this proportion was significantly different from the -25% figure for the low credibility, counterargument defense condition. You may not be surprised if I confess to remaining a bit skeptical about the validity of our hypothesis, despite the support for it that can be read with some effort from the data of the first and third experiments. Gillig and I accordingly undertook a further replication.

In this fourth study, we limited ourselves to examining the effects of passage of time on opinion change induced by a low credibility source under conditions of no defense or counterargument defense. It was the increase of effect in the low credibility, no defense condition that we wanted to pin down, so we stopped bothering with high credibility groups. Two opinion topics were used, the routine medical examination topic that was used in the second experiment, and one, adapted from Linus Pauling, encouraging the use of massive doses of vitamin C. The counterargument defense for the vitamin C topic was adapted from an article in Consumer Reports, this being an article in which the medical consultants for Consumers Union took issue with Pauling's claims for beneficial effects of large vitamin C doses.

In this study we were looking, as before, for the pattern of a sleeper effect in the no defense condition but not in the counterargument defense condition. We looked for this pattern in the mean opinion scores as well as in direction of changes of opinion from immediate to delayed posttest and we didn't find it. For the Vitamin C topic (next slide), there was a small increase in mean opinion from immediate to delayed posttest, but this occurred both for the no defense and counterargument defense conditions. For the medical checkup topic (next slide), no such increase was apparent for either condition. These results appeared just the same when looked at in terms of direction of opinion change from immediate to delayed posttest.

At this point, looking back on what we had done, we felt it impossible to arrive at any solid conclusion regarding our initial hypothesis. In the first and third studies (both using the penicillin topic), we had found some evidence in support of our hypothesis. However, in the first study the result was not quite significant statistically and in the third study, the result was significant only for the direction of change analysis, and not for the analysis of mean opinion scores. The second study we were willing to ignore, but we couldn't ignore the fourth, which provided no evidence for the pattern we sought. In this state of uncertainty, Gillig and I decided to do one more study, trying to do it sufficiently carefully so that we would be willing to draw a conclusion in favor of, or against, our prediction when the data were in. Since we had obtained a supportive pattern only using the penicillin topic, we used both that topic and one other, the medical checkup topic, for which we had not previously been able to obtain any results that resembled a sleeper effect.

We employed only a low credibility source condition, but we used separate groups for the immediate and delayed opinion posttest measures, with the immediate posttest group also receiving a delayed posttest in order to allow a direction-of-change analysis. Both the immediate and delayed posttests were conducted by telephone, the immediate postest being completed within 24 hours of the subject's receiving the communication in the laboratory, the delayed posttest being two weeks after communication receipt. The next slide shows that we were unable to obtain a sleeper effect pattern for the penicillin topic that had yielded positive-appearing

results in two of the earlier studies. What did occur with the penicillin topic was that the no-defense subjects showed substantial immediate opinion change that decayed sharply over the two-week interval. The next slide shows that we were also unsuccessful in obtaining a sleeper effect for the medical checkup topic. Direction of change analyses for subjects who received both the immediate and delayed posttest gave a similar picture for both topics.

This brings me to the conclusion that I stated at the outset. It appears that the sleeper effect is, at best, an unreliable phenomenon. This conclusion is not really at odds with the existing literature. There is no published report of a sleeper effect in which the increase in opinion from an immediate to a delayed posttest is statistically reliable. Recall that the original report of a sleeper effect by Hovland, Lumsdaine, and Sheffield was based only on a subset of the opinion items they used. In some of the subsequent reports of a sleeper effect, only nonsignificant trends in the proper direction for a sleeper effect have sometimes been found. Statistically significant effects have been obtained only by comparing such nonsignificant increases in a low-source-credibility condition with more substantial decreases over time in a high-source-credibility condition. The significant source credibility by time of measurement interaction effect that may be obtained in this fashion has been reported in a sufficient number of studies to be regarded as reliable. However, it is not difficult to see that this interaction owes more to the decay in effect of the communication from the high credibility source than to any sleeper effect of the low credibility source. The data from our own third experiment, for which such a significant interaction was obtained in the no defense condition, are illustrative of this sort of finding for which the designation "sleeper effect" is clearly misleading.

What can be concluded relative to our theorization about the distinction between discounting responses and counterarguments? As a preface to any conclusion, I should repeat that we were generally successful (with the exception of the second experiment) in inducing the types of responses to the communication that we intended. I mentioned before that in the first 4 experiments, groups of subjects who did not provide opinion measurement data were used to check on responses elicited by the communications. For these groups, after induction of experimental variations and presentation of the truism-opposing communication, the communication would be replayed in short paragraph segments, after each of which subjects were asked to attempt to put in writing the reactions that had occurred to them upon <u>first</u> presentation of the communication. These reactions were scored to determine if the response was agreement, discounting, or counterarguing, or none of these. Analysis of these data indicated that the low-credible source induced substantially more discounting (but not more counterarguing) than did the high-credible source, while the prior counterargument defense induced substantially more counterarguing (but not more discounting) than did the no defense condition.

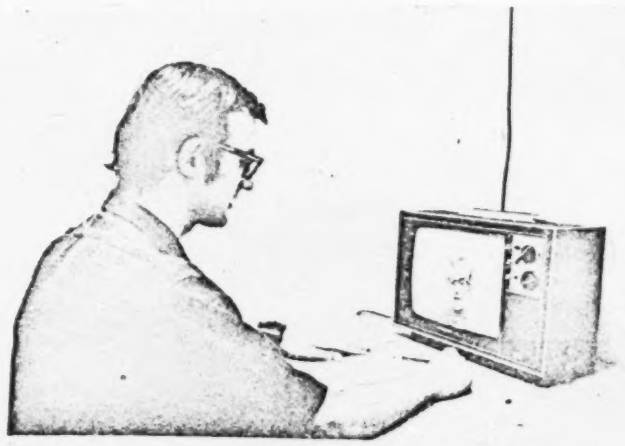
These findings were quite consistent with the assumption that persuasion reduction associated with the use of low-credible sources is mediated by a discounting response process, while the reduction in persuasion that follows from preeducation with a refutational defense is mediated by a counterarguing response process. I am sure that this hypothesis will shock no one. Although others have not attempted, as we have, to document the response processes that mediate resistance to persuasion, it would have been far more surprising had we not obtained these results.

Our hypothesis that discounting responses provide less-durable resistance to persuasion than do counterarguments was not supported to the extent of finding a reliable sleeper effect.

The next slide summarizes our results combined over five experiments in which we attempted to obtain a sleeper effect in the low credibility, no defense condition. The slide shows a main effect of defense, which we interpret as showing the effectiveness of counterarguing in reducing persuasion, but no reliable increase in persuasion over time in either of the low credibility conditions. Since we could not obtain a sleeper effect with satisfactory reliability, and since, in retrospect, previous investigators have had if anything less success than we, we feel it is time to start rewriting those portions of social psychology texts that describe this phenomenon as if it is a reliable empirical fact.

The phenomenon that is reliable fact is shown in the next slide. This slide summarizes results for the no defense conditions in the first three experiments--the ones in which two levels of source credibility were used. There is a significant interaction between source credibility and time delay of opinion posttest, but this interaction is almost totally dependent on the loss of effect of the high-credible source, not an increase in effect of the low-credible source. For our own rewriting, we will have to revise our hypothesis about the persistence of persuasion resistance associated with discounting vs. counterarguing responses. A plausible revised hypothesis is that audiences may be more susceptible to the effects of a similar communication from a new source when their response to an initial communication has been discounting rather than counterarguing. Testing this hypothesis will be a logical next step in our research on cognitive responses to persuasion.

#1.



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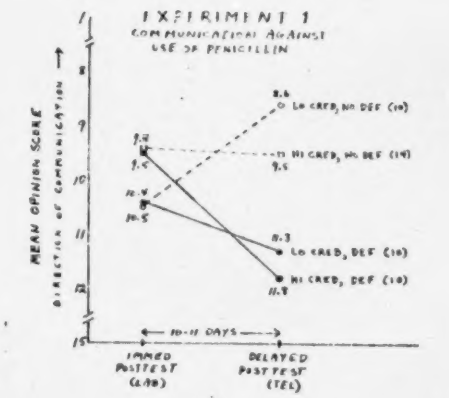
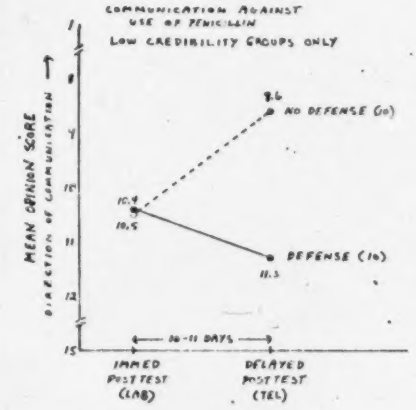
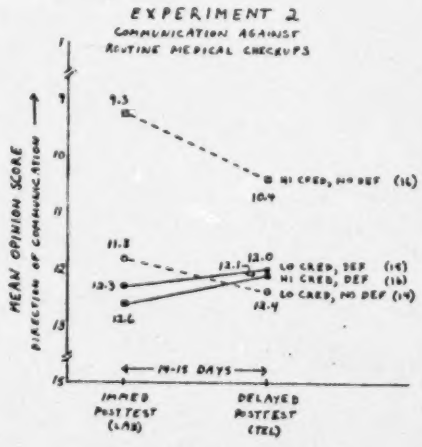

EXPERIMENT 1
COMMUNICATION AGAINST USE OF PENICILLIN
MEAN OPINION SCORE
DIRECTION OF COMMUNICATION
9.6
LO CRED, NO DEF (10)
9.8
9.5
HI CRED, NO DEF (19)
10.4
10.5
10.3
LO CRED, DEF (10)
11.9
HI CRED, DEF (10)
10-11 DAYS
IMMED POSTTEST (LAB)
DELAYED POSTTEST (TEL)

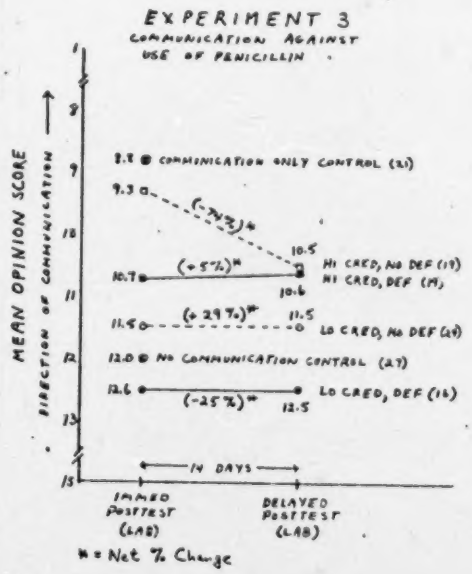
#3.


EXPERIMENT 1
COMMUNICATION AGAINST USE OF PENICILLIN
LOW CREDIBILITY GROUPS ONLY
MEAN OPINION SCORE
DIRECTION OF COMMUNICATION
9.6
NO DEFENSE (20)
10.4
10.5
DEFENSE (16)
11.3
10-11 DAYS
IMMED POSTTEST (LAB)
DELAYED POSTTEST (TEL)

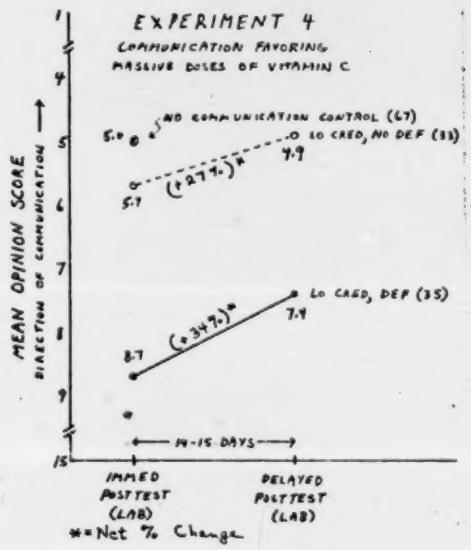
#4.


EXPERIMENT 2
COMMUNICATION AGAINST ROUTINE MEDICAL CHECKUPS
MEAN OPINION SCORE
DIRECTION OF COMMUNICATION
9.3
HI CRED, NO DEF (16)
10.4
11.8
12.1
12.0
LO CRED, DEF (14)
12.3
HI CRED, DEF (16)
12.6
12.4
LO CRED, NO DEF (14)
14-15 DAYS
IMMED POSTTEST (LAB)
DELAYED POSTTEST (TEL)

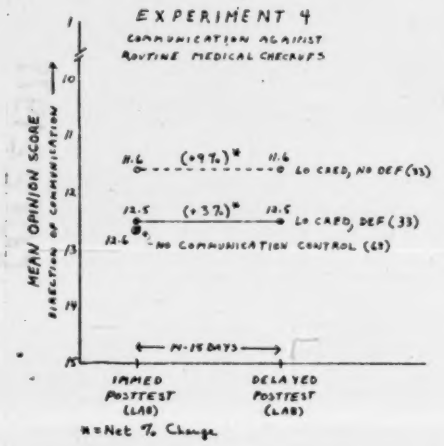
#5.


EXPERIMENT 3
COMMUNICATION AGAINST USE OF PENICILLIN
MEAN OPINION SCORE
DIRECTION OF COMMUNICATION
9.2 COMMUNICATION ONLY CONTROL (21)
9.3
(-7%)*
10.5
HI CRED, NO DEF (19)
10.7
(+5%)*
10.6
HI CRED, DEF (19)
11.5
(+29%)*
11.5
LO CRED, NO DEF (21)
12.0 NO COMMUNICATION CONTROL (21)
12.6
LO CRED, DEF (16)
(-2%)*
12.5
14 DAYS
IMMED POSTTEST (LAB)
DELAYED POSTTEST (LAB)
* = Net % Change

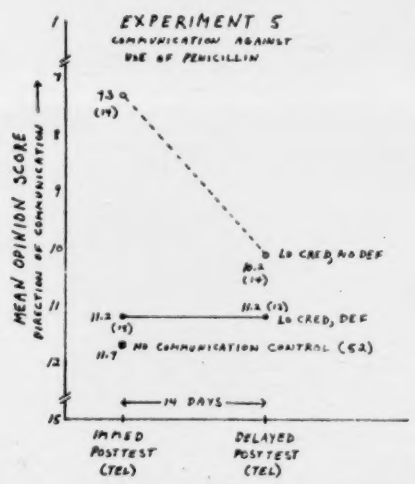
#6.


EXPERIMENT 4
COMMUNICATION FAVORING MASSIVE DOSES OF VITAMIN C
MEAN OPINION SCORE
DIRECTION OF COMMUNICATION
NO COMMUNICATION CONTROL (47)
LO CRED, NO DEF (33)
5.9
5.7
(+27%)*
7.9
LO CRED, DEF (35)
8.7
(+34%)*
7.9
14-15 DAYS
IMMED POSTTEST (LAB)
DELAYED POSTTEST (LAB)
*=Net % Change

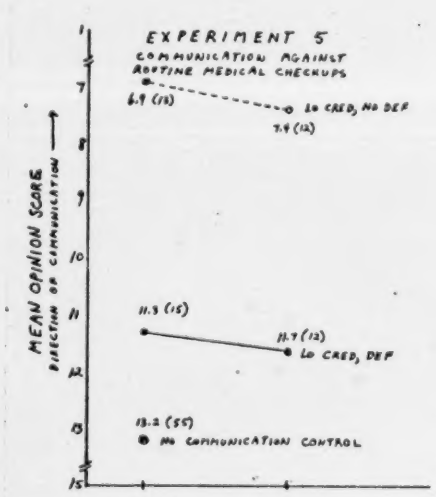
#7.


EXPERIMENT 4
COMMUNICATION AGAINST ROUTINE MEDICAL CHECKUPS
MEAN OPINION SCORE
DIRECTION OF COMMUNICATION
11.6
(+9%)*
11.6
LO CRED, NO DEF (33)
12.5
(+3%)*
12.5
LO CRED, DEF (33)
12.6
NO COMMUNICATION CONTROL (47)
14-15 DAYS
IMMED POSTTEST (LAB)
DELAYED POSTTEST (LAB)
*=Net % Change

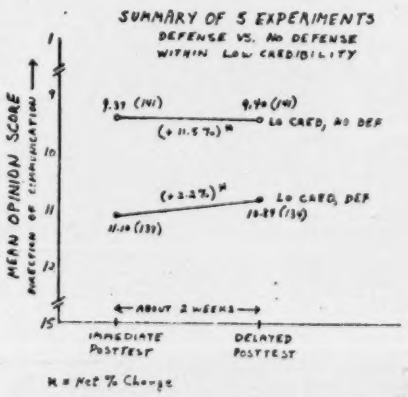
#8.


EXPERIMENT 5
COMMUNICATION AGAINST USE OF PENICILLIN
MEAN OPINION SCORE
DIRECTION OF COMMUNICATION
7.3 (19)
LO CRED, NO DEF
10.2 (14)
11.2 (14)
11.2 (13)
LO CRED, DEF
11.7
NO COMMUNICATION CONTROL (52)
14 DAYS
IMMED POSTTEST (TEL)
DELAYED POSTTEST (TEL)

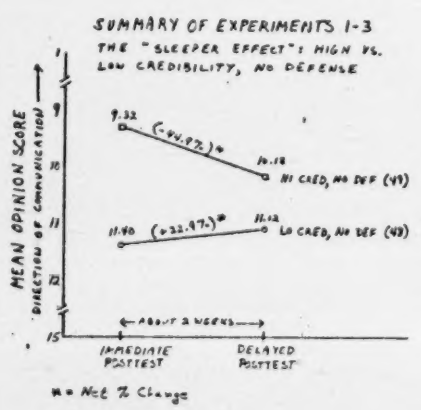
#9.


EXPERIMENT 5
COMMUNICATION AGAINST ROUTINE MEDICAL CHECKUPS
MEAN OPINION SCORE
DIRECTION OF COMMUNICATION
6.9 (11)
LO CRED, NO DEF
7.9 (12)
11.3 (15)
11.7 (12)
LO CRED, DEF
13.2 (55)
NO COMMUNICATION CONTROL

#10.


SUMMARY OF 5 EXPERIMENTS
DEFENSE VS. NO DEFENSE WITHIN LOW CREDIBILITY
MEAN OPINION SCORE
DIRECTION OF COMMUNICATION
9.37 (141)
9.70 (141)
(+11.5%)*
LO CRED, NO DEF
(+2.2%)*
LO CRED, DEF
11.10 (131)
10.89 (134)
ABOUT 2 WEEKS
IMMEDIATE POSTTEST
DELAYED POSTTEST
*=Net % Change

#11.


SUMMARY OF EXPERIMENTS 1-3
THE "SLEEPER EFFECT": HIGH VS. LOW CREDIBILITY, NO DEFENSE
MEAN OPINION SCORE
DIRECTION OF COMMUNICATION
9.32
(-44.9%)*
10.18
HI CRED, NO DEF (49)
11.90
(+22.9%)*
11.12
LO CRED, NO DEF (49)
ABOUT 2 WEEKS
IMMEDIATE POSTTEST
DELAYED POSTTEST
*=Net % Change